

Urban Eyes: Ultra-wideband (UWB) Detecting and Tracking



Lawrence Livermore National
Laboratory

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UltraWideband (UWB) Radar Technology



- Urban Eyes is a man-portable micro-power impulse radar (MIR) technology.
- MIR transceivers transmit and receive short duration, low power, wide-band pulses.
- Advanced radar and signal processing techniques detect moving objects beyond solid barriers (i.e., walls, doors, rubble).

Specifications...

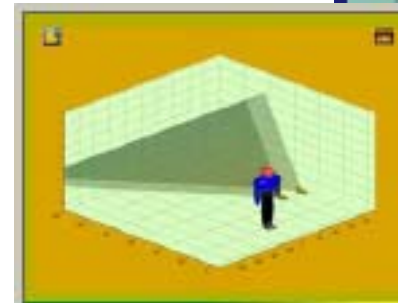
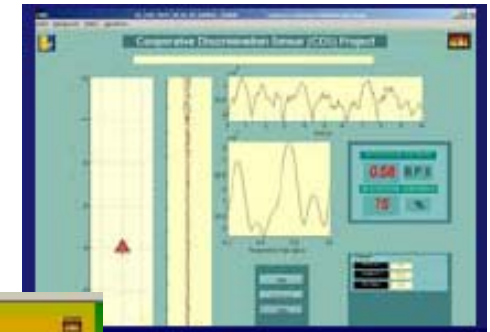
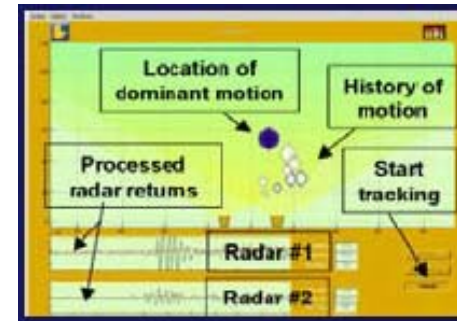


- UWB operation (center freq/bandwidth>0.5)
- Receiver gain 70 to 85dB; UWB impulses penetrate most common construction materials
- Radar sensor head <4 lb. (2 each); entire system transportable in a single backpack
- Low power operation; >4 hr. battery lifetime
- Display has refresh rate of >30 frames/s



Easy-to-Interpret Displays

- Remote graphical user interfaces provide 2D displays of objects relative to sensor position
- 1D temporal displays also available for motion characterization
- Human heartbeat and respiration signature (HRS) possible for motionless and nearby subjects



LLNL's Urban Eyes Technology Has Many Advantages



- Sophisticated algorithms and signal processing software operates faster, provides more information, and requires less time on target
- Urban Eyes is 2-3 times smaller and over 3 times lighter than any other devices
- Production costs are projected to be about 20-30 times less than current market alternatives
- LLNL has pioneered solid-state UWB pulse generation methods; our through-wall IP is years ahead of other developments.



Customers & Markets



- First Responders, Search & Rescue
- Law Enforcement: Police, SWAT
- Urban Warfare
- Medical Triage and Patient Monitoring
- Security & Surveillance





Field Testing

- LLNL deployed a search team to the World Trade Center on 9/11
- Urban Eyes successfully tracked living victims of the Katrina disaster
- First responders praise ease-of-use and have expressed interest in acquiring the device



LLNL is Looking for a Company to License this Technology



- LLNL is committed to *Fairness of Opportunity* procedures in licensing
- Criteria for licensing:
 - ☐ Commitment to commercialize the technology
 - ☐ Commercialize for the benefit of the U.S. economy and the general public
 - ☐ Interested companies must complete a commercialization questionnaire for evaluation purposes
 - ☐ Foreign companies must demonstrate benefit to the U.S. economy (satisfy certain requirements)
- A Mutual Non-disclosure Agreement (MNDA) is required before conducting technical discussions or meeting with the inventor.



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